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NOTES AND NEWS.

Professor M. W. Haskell, of the University of California, has been promoted to a full professorship.

Professor H. P. Manning, of Brown University, has been promoted to an associate professorship of mathematics.

At the University of Rochester, Dr. A. S. Gale has been promoted to the Fayerweather Professorship of Mathematics.

Professor J. J. Quinn has charge of Manual Training and Mechanical Drawing in the Scottdale (Pa.) Public Schools.

Professors P. A. Lambert and A. E. Meake, of Lehigh University, have been promoted to full professorships of mathematics.

Milton L. Comstock, who for forty years was a teacher in Knox College, died at his home in Galesburg, Illinois, November 8, 1906, at the age of 82. Professor Comstock was elected to the chair of mathematics in Knox College in 1858 and held the position until 1898, when he was made Professor Emeritus. For years he was prominent in Teachers' Institute work in Illinois. He was a subscriber to the MONTHLY for several years.

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BOOKS AND PERIODICALS.

A Laboratory Course in Physics for Secondary Schools. By Robert Andrews Millikan, Ph. D., Assistant in Physics in The University of Chicago, and Henry Gordon Gale, Ph. D., Instructor in Physics in The University of Chicago. 8vo. Flexible Cloth Cover, x+134 pages. Boston and Chicago: Ginn & Co.

This little laboratory manual designed for secondary schools contains 51 experiments covering a wide range of topics. The description of the experiments is adequate and the illustrations are good. The book will be welcomed by teachers of physics whose appropriation for apparatus is very limited, for much of the apparatus described can be made at home. B. F. F.

Algebra for Secondary Schools. By Webster Wells, S. B., Professor of Mathematics in the Massachusetts Institute of Technology. 8vo. Flexible Cloth Back, x+462 pages+50 pages of answers. Price, $1.20. Boston and Chicago: D. C. Heath & Co.

Among the distinctive features of this work are the use of formulas of physics and the introduction of problems involving the elementary laws of physics occurring at intervals throughout the book; graphical work occurring wherever the equation is introduced and given sufficient scope to acquaint the student with the great value of this work. Professor Wells has brought together in this book the best features of his other algebras.

B. F. F.

The Elements of Physics. By S. E. Coleman, A. B., A. M. (Harvard), Head of the Science Department and Teacher of Physics in the Oakland (Cal.) High School. 8vo. Cloth, 448 pages. Price, $1.25. Boston and Chicago: D. C. Heath & Co.

This book is well suited to High School use. The treatment of the general principles is ample, the selection of exercises is good, and the order of treatment of the various subjects is logical. B. F. F.

Text-Book in Algebra. By Webster Wells, S. B., Professor of Mathematics in the Massachusetts Institute of Technology. 8vo. Half Leather Back, xi+561 pages. Price, $1.50. Boston and Chicago: D. C. Heath & Co.

This text-book contains over 4000 examples and problems, and a full treatment of all subjects of ordinary algebra. Free use is made of graphs. The book contains an Index in which are given references to all important operations and definitions. B. F. F.

Analytical Geometry. A First Course. By W. H. Maltbie, Woman's College of Baltimore, Md. 8vo. Paper Back, 142 pages. Published by the Author.

The aim of the author in preparing this book is to give a clear exposition of the methods of Analytical Geometry, leaving the working out of theorems largely to the student. In addition to the general treatment of the straight line and the conics, five appendices A, B, C, D, E, are added, in which are brief discussions of Infinities of Various Orders, Functionality, Permissible Operations, Projections, and Imaginaries. B. F. F.

Inductive Plane Geometry with Numerous Exercises, Theorems, and Problems for Advanced Work. By G. Irving Hopkins, Instructor in Mathematics and Astronomy, High School, Manchester, N. H. Revised Edition. Half Leather, vi+208 pages. Price, 75 cents. Boston and Chicago: D. C. Heath & Co.

Original work is the main feature of the method used by the author. "The early introduction of triangles, the minimum use of the method of superposition, numerical problems involving the use of the metric system of measures, and problems showing the applications of algebra to geometry" are special features of this edition.

On page 29 is given a direct proof of the theorem, *If the bisectors of the base angles of a triangle are equal, the triangle is isosceles.* This demonstration was published in Vol. IX, p. 43, of the MONTHLY, and it is believed was the first direct proof of the theorem ever published. B. F. F.

Practical Business Arithmetic. By John H. Moore, Commercial Department of the Charleston High School, Boston, and George W. Miner, Commercial Department, Westfield (Mass.) High School. 8vo. Cloth, viii+449 pages. Price, $1.00.

Some of the points of superiority claimed for this book are: (1) the emphasizing of fundamental operations; (2) freedom from useless definitions and theory; (3) problems dealing with live matter and correlated with the business activities of to-day; (4) graphic representations, scales, plots, and estimates given their proper share of attention; (5) and the illustration of a variety of business forms in attractive script.

The book is printed on a good quality of paper, is neatly bound, is very attractive in general appearance, and will prove of great value to all teachers of commercial arithmetic. B. F. F.

Text-Book of Mechanics. By Louis A. Martin, Jr. (M. E., Stevens; A. M., Columbia), Assistant Professor of Mathematics and Mechanics in Stevens Institute of Technology. Vol. I, Statics. First Edition. xii + 142 pp. 8vo. Cloth. Price, $1.25. New York: John Wiley & Sons.

The author states in his preface that the work is based upon notes prepared for the use of Freshman and Sophomore classes at Stevens Institute of Technology. Analytical Geometry is used but no use is made of the Calculus. Numerous examples are introduced to illustrate each principle. B. F. F.

The Development of Symbolic Logic. A Critical-Historical Study of the Logical Calculus. By A. T. Shearman, M. A. 8vo. Cloth, x+242 pages. Price, 5 shillings. London: Williams and Norgate.

This book aims to show that there has been made during the last fifty years a definite advance in Symbolic Logic. The growth of the subject from the time when Boole wrote his *Laws of Thought* to the time when Russel, following for the most part the lines laid down by Peano, showed how to deal with a wider range of problems than those considered by Boole, has been traced. The book will be of great value to logicians and students of pure mathematics. B. F. F.

A First Course in Physics. By Robert Andrews Millikan, Ph. D., Assistant Professor of Physics in The University of Chicago, and Henry Gordon Gale, Ph. D., Instructor in Physics in The University of Chicago. 12mo. Cloth, viii +488 pages. Boston and Chicago: Ginn & Co.

This book, which is intended for a third year High School pupil, has grown out of the author's experience in developing the work in Physics in the School of Education of The University of Chicago. It emphasizes the historical and practical phases of the subject and closely connects it with the experience and observation of every day life. Human interest is added to the book by incorporating excellent portraits and brief biographies of such noted physicists as Maxwell, Faraday, Helmholtz, etc. A first class book for the High School. B. F. F.

Text-book on the Strength of Materials. By S. E. Slocum, Assistant Professor of Mathematics in the University of Illinois, and E. L. Hancock, Instructor in Applied Mechanics in Purdue University. 8vo. Cloth, xii+314 pages. Illustrated. List price, $2.00.

This book was produced with the aim of thoroughly representing the best theory and practice in an elementary form for the use of third year students in technical and engineering schools. It is divided into two parts; the first part containing 216 pages, presents the theoretical side of the subject, and the second part the experimental side. The entire subject is systematically developed, and in the treatment rigor and simplicity are happily combined. The book is very handsomely gotten up, the typography, illustrations, and mechanical execution being very good. B. F. F.

Essentials of Geometry, Plane and Solid. By Webster Wells. Half Leather, vii+402 pages. Price, $1.25. Boston and Chicago: D. C. Heath & Co.

In this book, the author recognizes the needs of the student, and meets them in such a way as to arouse his interest. The exercises, about 800, are carefully selected, the definitions are accurate, the demonstrations rigorous, and the discussions clear and logical.

B. F. F.

Space and Geometry in the Light of Physiological, Psychological, and Physical Inquiry. By Dr. Ernest Mach, Emeritus Professor in the University of Vienna. From the German by Thomas J. McCormack, Principal of the La Salle-Peru Township High School. 8vo. Cloth, 148 pages. Price, $1.00. Chicago: The Open Court Publishing Co.

This little book is made up of three essays which were originally written for the *Monist* and which have appeared in that journal. The first essay treats "On Physiological, as Distinguished from Geometrical, Space"; the second, "On the Psychological and Natural Development of Geometry"; and the third, "Space and Geometry from the Point of View of Physical Inquiry." Dr. Mach's writings on a wide range of scientific subjects are well and favorably known to all readers interested in the progress of science. His familiarity with physiological, psychological, and physical theories has enabled him to discuss the subject from different points of view, and to throw light on the many divergent forms which the science of space has historically assumed. His discussion is thoroughly interesting and instructive. B. F. F.

Philolaus. By William Romaine Newbold, University of Pennsylvania. Reprinted from Archiv für Geschichte der Philosophie, XIX Band. Heft 2, 1905. Pamphlet, 176—217 pages.

The author attempts, in this article, to give an interpretation of several passages which were not satisfactorily explained by Boeckh in his monograph upon Philolaus, nor by any of his successors. The first is Philolaus' meaning of "Embodying" and "Splitting" ratios, a function which he applies to number. The second is the nature of the principles assumed by Philolaus and termed by him *περαι'νοντα* and *απειρα*. In the course of the author's discussion, he brings out a number of historical facts which will be of considerable interest to writers on the history of mathematics and astronomy.

A few typographical errors, and one error of statement on page 208, patent to the geometrician, exist. Here the author says, "Such a polygon [a polygon of fifty-eight sides] cannot even to-day be inscribed in a circle by any means known to mathematics." He, of course, means a regular polygon; and even then his statement is not true, for such a polygon is easily inscribed in a circle by means of a multisector, for example. By means of a straight edge and a pair of compasses, the problem is, of course, impossible. B. F. F.

Groups Generated by Two Operators which Transform Each Other into the Same Power. By Dr. G. A. Miller. Obilka z Prac Matematy czno-fizyczznyck, T. XVII. Pamphlet, 4 pages.

The Value of Science. By M. H. Poincare. Translated by Dr. George Bruce Halsted. Reprinted from Popular Science Monthly. Pamphlet, 193—206 pages.

The Cattle Problem of Archimedes. By Professor Mansfield Merriman, Lehigh University. Reprinted from Popular Science Monthly. Pamphlet, 660—665 pages.